



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/707,837	11/08/2000	Kazuomi Sakatani	325772019900	9473

25227 7590 04/05/2004
MORRISON & FOERSTER LLP
1650 TYSONS BOULEVARD
SUITE 300
MCLEAN, VA 22102

EXAMINER

SUKHAPHADHANA, CHRISTOPHER T

ART UNIT PAPER NUMBER

2625

DATE MAILED: 04/05/2004

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/707,837

Applicant(s)

SAKATANI, KAZUOMI

Examiner

Christopher T. Sukhaphadhana

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 2625

DETAILED ACTION

Response to Amendment

1. The Amendment filed 02 February 2004 has been entered in full.
2. Based on Applicant's amendments, the objection to the title and the 35 USC 112 rejections are withdrawn.

Priority

3. The Verified Translation of the foreign priority document has been received.
4. Based on the Verified Translation, the 35 USC 102(a) rejections under the Lau reference are withdrawn.

Response to Arguments

5. Applicant's arguments, see the paragraph bridging pages 5-6 of the Amendment filed 02 February 2004, with respect to the rejection(s) of claim(s) 1-9 under 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Maeda (JP 10-155087, previously cited, see paragraph 24 of the Office Action filed 02 October 2003) in combination with Sullivan et al (U.S. Patent 5,070,413, previously cited).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2625

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 1-3 and 5-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda (JP 10-155087, previously cited, "Maeda") in combination with Sullivan (U.S. Patent 5,070,413, previously cited, "Sullivan").

8. In regards to **claim 1**, Maeda discloses an image processing apparatus (drawing 1) comprising: an error adding unit (ref no 14, drawing 1, and paragraph 0012) for correcting the color of each pixel of an input image in accordance with an error data (accumulated error, paragraph 0012); an error calculator (ref no 15, drawing 1) for generating the error data for diffusing error to pixels peripheral to a target pixel (paragraph 0007 and 0013, and drawing 4), and contributing the error data (paragraph 0007) to the error adding unit; and a noise overlay unit (ref no 12 and 13, drawing 1, and paragraphs 0006 and 0009) for superimposing noise on the input image and provided as a front stage (ref no 13, drawing 1) to the error adding unit (ref no 14, drawing 1).

9. Maeda does not expressly disclose an output color selector as claimed or the error calculator diffusing color error converted by the output color selector.

10. Sullivan teaches an output color selector (ref no 24, Fig 5) for converting the color corrected by an error adding unit to a single color selected from among a plurality of outputtable colors of the image processing apparatus; and an error calculator (ref no 24, Fig 5) for generating error data for diffusing the color error converted by the output color selector to pixels peripheral to a target pixel.

Art Unit: 2625

11. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Sullivan's teachings onto the right portion of drawing 1 of Maeda (where Maeda 14 is roughly Sullivan 22, and Maeda 15 is roughly Sullivan 28 and 30) because it would provide an improved color error diffusion system where perceived color vector rather than binary color error is propagated (Sullivan, abstract).

12. In regards to **claim 2**, Sullivan further discloses in col 4, line 65, the color of each pixel of an input image is corrected by vector error diffusion method.

13. In regards to **claim 3**, Maeda further discloses in paragraph 0009, the noise being color data having relation to the colorimetric value of each outputtable color.

14. In regards to **claims 5-6**, all the elements set forth in this claim have been addressed in the argument of claim 1.

15. In regards to **claims 7-8**, all the elements set forth in this claim have been addressed in the argument of claims 2-3, respectively.

16. **Claim 4 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda (JP 10-155087, "Maeda") and Sullivan et al (U.S. Patent 5,070,413, "Sullivan") as applied to claim 1 above, in further combination with Kaburagi et al (U.S. Patent 5,805,738, newly cited, "Kaburagi").

17. In regards to **claim 4**, Maeda and Sullivan do not expressly disclose the noise being selected so that the total sum of relative amount of overlay noise is zero relative to the colorimetric value of each outputtable color.

Kaburagi teaches the above limitation (Fig 20 and col 17, lines 17-36). Note that in this instance, a pair of positive and negative random numbers (having equal absolute values, col 19, line 39) are added to two pixels in a four pixel period as shown in Fig 20 and in col 17, lines 27-31. This number pairing brings the sum of the relative amount of overlay noise relative to the colorimetric value of each outputtable color to zero.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Kaburagi's teachings into Maeda and Sullivan's apparatus because the arrangement for adding positive and negative random numbers at every other pixel positions can suppress granular noise (Kaburagi, col 17, lines 37-40) Furthermore, Maeda does not expressly disclose a particular or preferred random number generator or method of perturbing the input signal. Kaburagi contributes one possible inner working of such.

18. In regards to **claim 9**, all the elements set forth in this claim have been addressed in the argument of claim 4.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. **Bhaskar et al** (U.S. Patent 6,002,804) teaches in col 2, lines 12-15, having an averaged value of noise as 0 so that the image is not lightened or darkened.


20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher T. Sukhaphadhana whose telephone number is 703-306-4148. The examiner can normally be reached on 9a-4p M-F.

Art Unit: 2625

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh M. Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CTS
CTS


BHAVESH M. MEHTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600